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13 June 2016

Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
101 I Street, 24th Floor
Sacramento CA 95814
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VIA: Electronic Submission
Hardcopy if Requested

RE: Concurrence With Central Valley Regional Water Quality Control Board's Order Granting an Exception to the State Thermal Plan for the Sacramento Regional Wastewater Treatment Plant

Dear Ms. Townsend and Members of the Board,

The California Sportfishing Protection Alliance (CSPA) has reviewed the exception to the State Thermal Plan granted by the Central Valley Regional Water Quality Control Board (Regional Board) and has already appealed Order R5-2016-0020 (NPDES No. CA0077682) to the State Water Resources Control Board (State Board). We appreciate the opportunity to comment on the State Board's proposed concurrence with the Thermal Plan exception.

Summary

Thermal Plan exceptions are regulated by 40 CFR 125.73(a), which provides that,

> Thermal discharge effluent limitations or standards established in permits may be less stringent than those required by applicable standards and limitations if the discharger demonstrates to the satisfaction of the director that such effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. This demonstration must show that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

In considering whether to concur with the Regional Board's exception to the Thermal Plan, the State Board must consider five questions:

1. Does the subject reach of the Sacramento River, considering all cumulative impacts, already provide for the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife: i.e., is aquatic life already protected and healthy?

   As we show below, the answer is no. The Sacramento River in the vicinity of the Sacramento Regional Wastewater Treatment Plan (Sac Regional) outfall is habitat and migration corridor for an array of species listed as threatened and endangered pursuant to state and federal endangered species acts; identified, pursuant to the Clean Water Act, as an impaired waterbody for numerous pollutants and incapable of supporting identified beneficial uses and routinely experiences temperature levels that cause and/or contribute to stress and lethality to fish and that block fish migration, as evidenced by the scientific literature and biological opinions issued pursuant to the federal Endangered Species Act.

2. Does the subject reach of the Sacramento River already exceed temperatures that approach or exceed levels found to cause harm and lethality to aquatic life: i.e., is there any remaining assimilative capacity for additional discharges of elevated temperature above ambient river levels?

   As we show below, the river already exceeds temperature levels that impedes and blocks migration of multiple runs of Chinook salmon and causes stress and lethality to delta smelt, species protected under endangered species acts. Consequently, there is no remaining assimilative capacity to absorb additional thermal loading.

3. Is the Thermal Plan itself protective of aquatic life: i.e., do thermal discharges allowed under the Thermal Plan ensure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife: i.e., are temperature discharges allowed under the Thermal Plan harmful and lethal to aquatic life?

   As we show below, the Thermal Plan, itself, allows for the discharge of temperature that contributes and/or causes blockage of salmon migration and causes stress and lethality to delta smelt. When ambient river temperature already exceeds harmful levels, there is no remaining assimilative capacity and cross sectional area or zones of passage are irrelevant.

4. Does the proposed Thermal Plan exception provide for the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife?

   As we show below, the Thermal Plan exception exacerbates harm to fish by permitting discharges of elevated temperature that exceed levels found to block salmon migration and contribute or cause stress and lethality to delta smelt beyond temperature discharges allowable under the Thermal Plan, especially when the exception permits higher temperature discharges in April and October.

5. Are daily average temperature standards protective of fisheries?

> As we show below, a daily average is not protective of fisheries: consequently, the Thermal Plan and any exception to it cannot ensure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife when ambient or background temperatures approach or exceed levels harmful to aquatic life.

Given that federally threatened spring-run, endangered winter-run and endangered delta smelt are present in the Sacramento River during critical life stages when ambient water temperatures frequently exceed levels identified in the scientific literature and biological opinions as stressful, blocking migration and lethal to these species, it is unreasonable and unconscionable to allow Sac Regional an exception to the Thermal Plan permitting the discharge of up to 181 mgd of thermal loading 20 and 25˚F higher than ambient river water.

In sum, CSPA does not believe that the weakened effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. Nor does CSPA believe that it can be shown that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected, will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

CSPA requests the State Board to reject the proposed Thermal Exception and, instead, require more stringent requirements regulating Sac Regional's excessive thermal loading in order to protect fish species that are perilously close to extinction.

Specific Comments

The subject Permit regulates the discharge of municipal wastewater into a relatively narrow and seriously polluted reach of the Sacramento River that is within the tidal prism and habitat and a migration corridor for numerous pelagic and anadromous fish species. Species that are listed or proposed to be listed, pursuant to state and federal Endangered Species Acts, and that depend upon the Delta for all or a critical part of their life cycle include: southern Distinct Population Segment (DPS) green sturgeon (*Acipenser medirostris*), federal threatened, candidate for federal endangered; Delta smelt (*Hypomesus transpacificus*), state endangered, federal threatened, Longfin smelt (*Spirinchus thaleichthys*), state threatened, candidate for federal threatened; Central Valley steelhead (*Oncorhynchus mykiss*), federal threatened; Sacramento winter-run Chinook salmon (*Oncorhynchus tshawytscha*), state endangered, federal endangered; Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*), state threatened, federal threatened; Central Valley fall/late-fall-run Chinook salmon (*Oncorhynchus tshawytscha*), federal species of concern, state species of special concern; Sacramento splittail (*Pogonichthys macrolepedotus*), state species of special concern; Pacific lamprey (*Entosphenus tridentate*), federal species of concern and river lamprey (*Lampetra ayresi*), state species of special concern. Impacts to Chinook salmon also have potential to adversely affect Killer whales or Orcas (Southern Resident DPS) (*Orcinus orca*), federal listed as endangered because they are dependent upon Chinook salmon for 70% of diet and reduced quantity and quality of diet is one of the major identified causes of their decline.

The precipitous collapse of the Central Valley's pelagic and anadromous fish populations has been documented at considerable length. Since 1967, the California Department of Fish and Wildlife's (DFW) Fall Midwater Trawl indices for striped bass, Delta smelt, longfin smelt, American shad, splittail and threadfin shad have declined by 99.7, 97.8, 99.9, 91.9, 98.5 and 97.8 percent, respectively. The 2016 Spring Kodiak Trawl index for delta smelt is 1.8, which is a devastating decrease from last years record low of 13.8. *See*, http://www.dfg.ca.gov/delta/projects.asp?ProjectID=FMWT.

The U.S. Fish & Wildlife Service's (USFWS) Anadromous Fisheries Restoration Program (AFRP) documents that, since 1967, in-river natural production of Sacramento winter-run Chinook salmon and spring-run Chinook salmon have decline by 98.2 and 99.3 percent, respectively, and are only at 5.5 and 1.2 percent, respectively, of doubling levels mandated by the Central Valley Project Improvement Act, California Water Code and California Fish & Game Code. *See*, http://www.fws.gov/lodi/afrp/. Population year classes of naturally reproducing Sacramento River winter-run, spring-run and fall-run Chinook salmon were virtually destroyed by lethal temperatures in 2014 and 2015.

The northern part of the Delta, including the subject Freeport reach is identified on the 303(d) list as impaired by chlorpyrifos, DDT, diazinon, dieldrin, group A pesticides, invasive species, mercury, PCBs and unknown toxicity. Beyond listed pollutants, there is a vast array of pharmaceuticals, household and agricultural chemicals that are identified as harmful to aquatic life present in these waters that are not routinely monitored. Water quality standards have never been promulgated for the vast majority of these constituents and their degradants. However, they are stressors that cumulatively and synergistically interact to create stressful conditions for aquatic life that cumulatively weakens the ability of fish to withstand high temperature.

According to the U.S. Geological Survey monitoring station at Freeport, immediately upstream of Sac Regional's outfall, ambient river temperatures in 2015 exceeded 65˚F (18.4˚C) from 18 April through 24 October. Temperatures in 2014 exceeded 65˚F between 11 and 27 April and 30 April through 22 October. Temperatures in 2013 exceeded 65˚F between 22 April and 26 September. So far in 2016, temperatures began exceeding 65˚F between 12 and 20 May and 27 May to the present.

Temperatures exceeded 70˚F (21.1˚C) in 2015 between 28 April and 5 May; 26 May through 16 September; and 24 September and 30 September. Between 25 June and 5 July 2015, temperatures averaged 25.1˚C (77.2˚F). In 2014, temperatures exceeded 70˚F on 17-19 April, 2-5 May, 7 May, 9 May and 14 May though 29 September. In 2013, temperatures exceeded 70˚F between 31 May and 23 June and between 28 June and 7 September. This year (2016), temperatures began exceeding 70˚F on 1 June.
http://waterdata.usgs.gov/ca/nwis/uv/?site_no=11447650&PARAmeter_cd=00065,00060

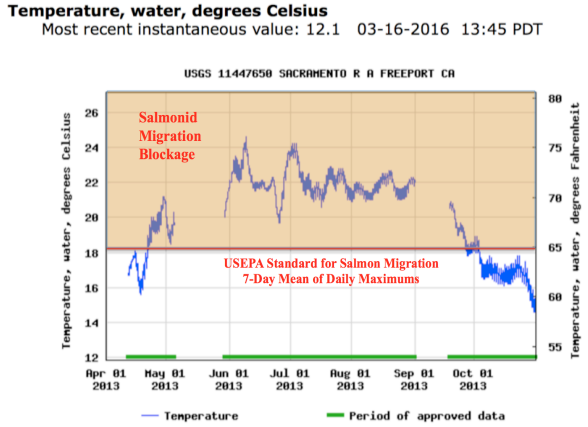
Ambient river temperatures, for extended periods of time, in the Sacramento River in the vicinity of Sac Regional's outfall are frequently at levels that have been identified in the scientific literature and biological opinions as stressful or lethal to fish or block the migration of fish. Temperatures above 65˚F at Freeport during periods of salmonid migration occurred on 158 days

in 2013, 183 days in 2014, 190 days in 2015 and 26 days so far in 2016. Temperatures above 70˚F at Freeport during periods of salmonid migration occurred on 95 days in 2013, 146 days in 2014, 121 days in 2015 and 8 days so far in 2016. It is likely that temperature blockage of salmon migration in the Sacramento River in the vicinity of Sac Regional's outfall is a significant contributor to the collapse of Sacramento Valley anadromous fisheries. These temperatures are also highly stressful and, on the upper end, lethal to delta smelt.

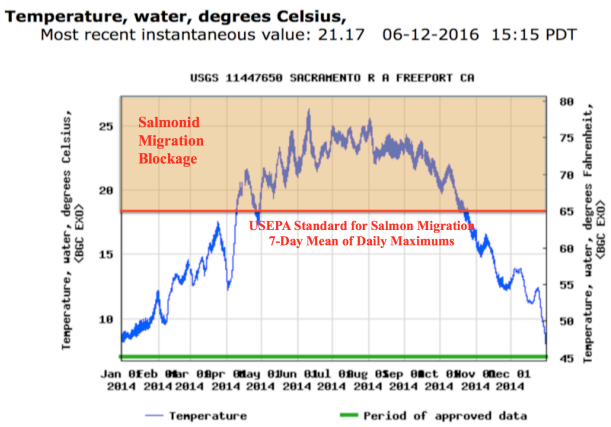
During these periods, there is absolutely no remaining assimilative capacity in the river to absorb any additional discharges of excessive temperature above background levels, nor can there be any "zone of passage" around a discharge of temperature. It is simply absurd to allow Sac Regional to discharge up to 181 mgd at up to 20˚F to 25˚F above background levels when existing river temperatures are already causing harm.

Data compiled from the United States Geological Survey Freeport station illustrates the elevated temperatures that are routine and impede or block salmonid migration and adversely impact delta smelt spawning in the subject reach of the Sacramento River.

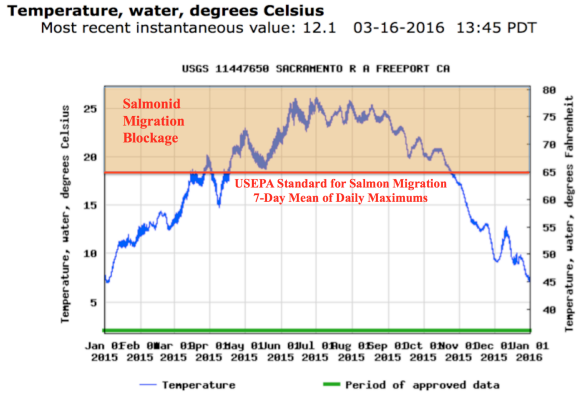
Freeport Temperature: 1 January – 31 December 2013



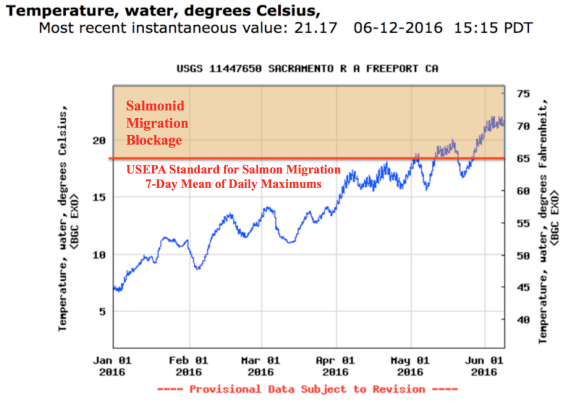
Freeport Temperature: 1 January – 31 December 2014



Freeport Temperature: 1 January – 31 December 2015



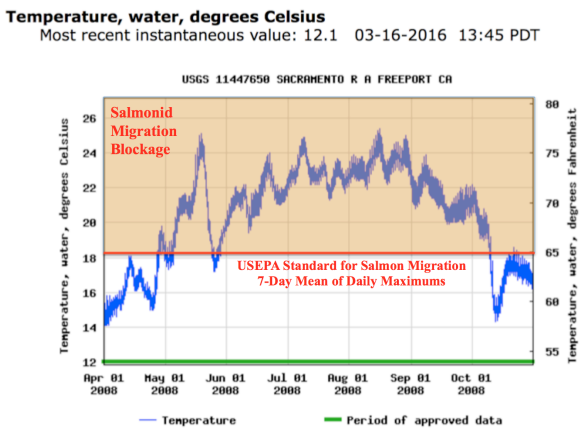
Freeport Temperature: 1 January – 8 June 2016



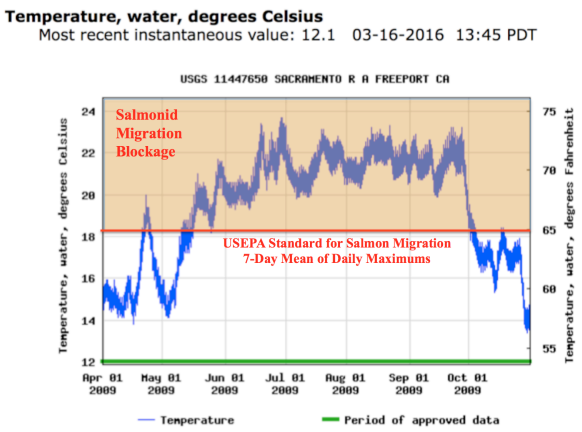
High temperature in the Freeport reach of the Sacramento River is not limited to the present drought and climate change will only exacerbate the situation. As following charts demonstrate,

excessive temperatures routinely occur during drier periods. It's past time to begin eliminating elevated thermal discharges into the Sacramento River.

Freeport Temperature: 1 April– 31 October 2008



Freeport Temperature: 1 April– 31 October 2009



Salmonids

According to California Department of Fish and Wildlife, fall-run Chinook salmon migrate upstream as adults from July through December and spawn from early October through late December, late fall-run migrate upstream from mid-October through December, spring-run Chinook enter the Sacramento River and migrate upstream from late March through September and adult winter-run pass under the Golden Gate Bridge from November through May, and pass into the Sacramento River on their upward migration from December through early August. http://www.dfg.ca.gov/fish/Resources/Chinook/. Young of the year fall-run Chinook salmon rear and emigrate to the sea between January and June, late fall-run emigrate between April and December, spring-run emigrate between November and May and winter-run emigrate between July and May.

Consequently, all four runs of Chinook salmon are present in the Sacramento River in the vicinity of Sac Regional's outfall throughout the year and upstream migrating and downstream emigrating and rearing salmonids are present when ambient river temperatures are at levels that block upward migration and impact downstream rearing and emigration.

The U.S. Bureau of Reclamation's 2008 Biological Assessment for the Long-term Operations of the Central Valley and State Water Projects, on pages 76-77, found that "Water temperatures in the lower Sacramento River mainstem regularly exceed 20°C by late spring (City of Sacramento water treatment plant, unpublished data); and statistical studies of coded-wire-tagged juvenile Chinook show that high temperatures are an important factor in mortality (Baker et al. 1995 as cited in Cech and Myrick 2001)" and observed that "The temperature recommendation for migrating adults was based on Hallock et al. (1970, as cited in Boles et al. 1988) who found Chinook immigration into the San Joaquin River was impeded by temperatures of 70°F, but resumed when the temperature fell to 65°F." Chapter 6, *Factors That May Influence Abundance and Distribution of Winter-Run and Spring-Run Chinook Salmon and Coho Salmon*, pages 6-1 to 6-2. http://www.usbr.gov/mp/cvo/ocapBA_051608.html

The National Marine Fisheries Service (NMFS) 2009 Biological Opinion for the Long-term Operations of the Central Valley and State Water Projects stated, "During their upstream migration, adult Chinook salmon require streamflows sufficient to provide olfactory and other orientation cues used to locate their natal streams. Adequate streamflows are necessary to allow adult passage to upstream holding habitat. The preferred temperature range for upstream migration is 38ºF to 56ºF (Bell 1991, CDFG 1998). Boles (1988) recommends water temperatures below 65˚F for adult Chinook salmon migration, and Lindley et al. (2004) report that adult migration is blocked when temperatures reach 70˚F, and that fish can become stressed as temperatures approach 70˚F" (page 76-77).
https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=21473

Following a long extensively peer-reviewed court ordered proceeding, USEPA Region 10 issued *EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards* (EPA Standards)(EPA 910-B-03-002), April 2003). The Guidance establishes a recommended criterion of 18ºC (64.4ºF) as a 7-day average of the daily maximums (7DADM), for Chinook salmon and steelhead migration plus non-core juvenile rearing. The states of Washington, Idaho and Oregon have established temperature criteria for salmonid rearing and migration as 7DADM 17.5ºC (63.5ºF).
https://www3.epa.gov/region10/pdf/water/final_temperature_guidance_2003.pdf

The 7DADM protects against not only the lethal effects of elevated temperatures but also the chronic and sublethal impacts that frequently occur in waters that meet weekly average temperatures. High daily maximum temperatures can lead to excessive mortality in waters that still meet weekly averages. Chronic and sublethal effects include reduced juvenile growth, increased incidence of disease, reduced viability of gametes in adults prior to spawning, increased susceptibility to predation and competitions and suppressed or reversed smoltification.

In 2011, USEPA Region 9, in disapproving the State Board's 2008-2010 306(d) list of impaired waterbodies, added the San Joaquin, Merced, Tuolumne and Stanislaus Rivers to the 303(d) list as impaired by temperature based partly on the Region 10 guidance and partly on recommendations by the California Department of Fish and Wildlife (CDFG) and the Regional Board, both of which used the Region 10 Guidance and other studies. The USEPA Region 9 letter stated,

> Additionally, EPA believes that EPA's Temperature Guidance values are appropriate for use in the Central Valley. The criteria have been used by California in their 303(d) list recommendation as well as selected as targets in Total Maximum Daily Loads (TMSLs) in the North Coast Regional of California (Carter 2008). They have also been used by National Marine Fisheries Service (NMFS") to analyze the effects of the long term operations of the Central Valley Project and State Water Project, and to develop the reasonable and prudent alternative actions to address temperature-related issues in the Stanislaus River (NMFS 2009a). Reviews of appropriate temperature criteria for use in the Stanislaus have yielded findings consistent with the EPA Temperature Guidance values (Deas (2004) and Marston (2003)).

The USEPA Region 9 letter also quoted a 2010 letter from Maria Rea, National Marine Fisheries Service (NMFS), to Alexis Straus (USEPA) that also supports the use of the Region 10 Guidance:

> The use of the US EPA 2003 criteria for listing water temperature impaired water bodies in the San Joaquin River basin is scientifically justified. It has been recognized that salmonid stocks do not tend to vary much in their life history thermal needs, regardless of their geographic location. There is not enough significant genetic variation among stocks or among species of salmonids to warrant geographically specific water temperature standards (US EPA 2001). Based upon reviewing a large volume of thermal tolerance literature, McCullough (1999) concluded that there appears to be little justification for assuming large genetic adaptation on a regional basis to temperature regimes.
>
> Although many of the published studies on the responses of Chinook salmon and steelhead to water temperature have been conducted on fish from stocks in Oregon, Washington, and British Columbia, a number of studies were reported for the Central Valley salmonids. Myrick and Cech (2001, 2004) performed a literature review on the temperature effects on Chinook salmon and steelhead, with a focus on Central Valley populations…

https://www3.epa.gov/region9/water/tmdl/303d-pdf/Final-DecisLtrEnclosResponsSumCA2008-10-303d.pdf

The 2013 Sacramento River Temperature Task Group (SRTTG) annual report revealed that NMFS had broached the subject of switching to a 7DADM. It stated on page 12:

> NMFS expressed the idea of tracking the 7-day maximum (7DADM) water temperature in order to determine whether sub-lethal effects on salmonid life history stages (spawning, egg incubation and fry emergence) exist, despite the current temperature requirement metric of a daily average (Appendix B). The 7DADM metric is recommended by EPA as of 2003 and has been used in other Central Valley rivers (e.g., Stanislaus, Tuolumne, and Merced rivers). NMFS looked at the 7DADM and what that might mean to the current daily average criterion (Figures 3-6). 7DADM can exceed daily average temperatures by as much as 4ºF at Balls Ferry and as much as 3ºF at Airport Road.

http://deltacouncil.ca.gov/sites/default/files/documents/files/SRTTG%20Annual%20Report%202013%2010-1-13.pdf

The North Coast Regional Water Quality Control Board, as part of its development of the Klamath Basin TMDLs, conducted an extensive literature review in order to identify temperature thresholds that are protective of salmonids by life stage. The effects analysis for temperature, reported as Appendix 4 of the Final Klamath River TMDL Staff Report observed:

> A 7-DADM temperature of 20˚C is recommended by the USEPA (2003) for waterbodies that are used almost exclusively for migration during the period of summer maximum temperatures.

> EPA believes that a 20˚C criterion would protect migrating juveniles and adults from lethal temperatures and would prevent migration blockage conditions. However, EPA is concerned that rivers with significant hydrologic alterations (e.g., rivers with dams and reservoirs, water withdrawals, and /or significant river channelization) may experience a loss of temperature diversity in the river, such that maximum temperatures occur for an extended period of time and there is little cold water refugia available for fish to escape maximum temperatures. In this case, even if the river meets a 20˚C criterion for maximum temperatures, the duration of exposure to 20˚C temperatures may cause adverse effects in the form of increased disease and decreased swimming performance in adults, and increased disease, impaired smoltification, reduced growth, and increased predation for late emigrating juveniles...(USEPA 2003).

> Therefore, the USEPA recommends a narrative provision to protect and, if possible, restore the natural thermal regime accompany the 7-DADM 20˚C criterion for rivers with significant hydrologic alterations.

Appendix 4, Effects of Temperature, Dissolved Oxygen/Total Dissolved Gas, Ammonia, and pH on Salmonids, pages 3 and 4.
http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/klamath_river/100927/staff_report/16_Appendix4_WaterQualityEffectsonSalmonids.pdf

While a 20˚C (68˚F) as a 7-day average daily maximum (7DADM) temperature is likely to prevent upstream migration blockage and core rearing areas, it isn't sufficient for non-core rearing areas defined by USEPA as rearing in the mid and lower part of a basin, downstream of salmon and trout core juvenile rearing use areas. Non-core use areas are found downstream of the juvenile salmon core rearing areas and extending to the basin's terminus or saltwater. Consequently, given that downstream emigrating and rearing salmonids are in the river in the Freeport reach twelve months of the year, the USEPA guidance of 18˚C (64˚F) 7DADM is more appropriate to protect emigrating and rearing salmonids. (*EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards*, pages 25 and 27-28)
https://www3.epa.gov/region10/pdf/water/final_temperature_guidance_2003.pdf

Delta Smelt

The U.S. Bureau of Reclamation's 2008 Biological Assessment for the Long-term Operations of the Central Valley and State Water Projects observes, "An optimal spawning temperature "window" of about 12˚C – 18˚C (59˚F - 64.4˚F) has recently been reported (Bridges unpublished; Bennett unpublished)," page 7-2); "Most spawning occurs at temperatures between 7 - 15°C, although it may occur at temperatures up to 22°C (Moyle 2002)," (page 7-3); "The spring temperature "window" is thought to influence delta smelt abundance by influencing reproductive success - a longer period of optimal water temperatures during spring increases the number of spawning events and cohorts produced. More cohorts translate into a higher probability for a strong year class. Summer water temperatures have also been shown to be an important predictor of delta smelt occurrence based on multi-decadal analyses of the TNS data (Nobriga et al. 2008), (page 7-12); and "Summer water temperatures throughout the upper estuary are fairly high for delta smelt. Mean July water temperatures in the upper estuary are

typically 21-24C (Nobriga et al. in press) and the lethal temperature limit for delta smelt is reported to be 25C (Swanson et al. 2000)…," (page 4-20). Chapter 7, *Basic Biology and Life History of Delta Smelt and Factors that May Influence Delta Smelt Distribution and Abundance.* http://www.fws.gov/sfbaydelta/documents/SWP-CVP_OPs_BO_1215_final_OCR.pdf

The U.S. Fish and Wildlife Service's 2009 Biological Opinion for the Long-term Operations of the Central Valley and State Water Projects observes, "Adult delta smelt spawn during the late winter and spring months, with most spawning occurring during April through mid-May (Moyle 2002). Spawning occurs primarily in sloughs and shallow edge areas in the Delta" and "Most spawning occurs at temperatures between 12-18°C. Although spawning may occur at temperatures up to 22°C, hatching success of the larvae is very low (Bennett 2005)." Page 147. It further states, "Mager et al. (2004) reported that embryonic development to hatching takes 11-13 days at 14-16˚C for delta smelt, and Baskerville-Bridges et al. (2000) reported hatching of delta smelt eggs after 8-10 days at temperatures between 15-17˚C. Lindberg et al. (2003) reported high hatching rates of delta smelt eggs in the laboratory at 15˚C, and Wang (2007) reported high hatching rates at temperatures between 14-17˚C. Bennett (2005) showed hatching success peaks near 15ºC. Swim bladder inflation occurring at 60-70 days post-hatch at 16-17˚C (Mager et al. 2004)." Page 148. It further observes, "The number of days of suitable spawning temperature during spring is correlated with subsequent abundance indices in the autumn (Bennett 2005). This is evidence that cool springs, which allow for multiple larval cohorts, can contribute, (page 157); "Migrating, staging, and spawning delta smelt also require low-salinity and freshwater habitats, turbidity, and water temperatures less than 20ºC (68ºF)" and "Hatching success is only about 20 percent at 20˚C in the laboratory and declines to zero at higher temperatures (Bennett 2005)," (page 192); "Delta smelt are weakly anadromous and move from the LSZ into freshwater to spawn, beginning in late fall or early winter and likely extending at least though May (see Delta Smelt Life Cycle section in the Status and Baseline)." Page 195. And it states, "The temperature range of 12 to 18°C is the range in which most successful delta smelt spawning occurs" and "Critical thermal maxima for delta smelt was reached at 25.4°C in the laboratory (Swanson et al., 2000)…," (page 314).
http://www.fws.gov/sfbaydelta/documents/swp-cvp_ops_bo_12-15_final_ocr.pdf

William Bennett's highly acclaimed and often cited study titled *Critical Assessment of the Delta Smelt Population in the San Francisco Estuary, California* is worth elaboration. He found that "spawning can occur from late February to June, although larvae are typically most abundant from mid-April through May" (page 13), and temperatures "exceeding 20˚C decrease the egg incubation period, mean hatch length, time to first-feeding, as well as larval feeding success, leading to overall higher mortality" (page 17), and that "temperatures within 15 to 20˚C appear to limit the number of cohorts comprising size-frequency distributions of post-larvae" and larval surveys suggest a temperature window of spawning success with a possible refinement to about 14 – 18˚C (page 18). http://escholarship.org/uc/item/0725n5vk#page-11.

In other words, most successful delta smelt spawning occurs at temperatures between 57.2 to 64.4˚F and is sharply reduced at temperatures above 68˚F. Spawning occurs to June, which means that larvae are likely present in the Sacramento River at Freeport for some additional weeks. The USGS gage at Freeport reported that ambient river temperature began exceeding

65˚F in April during 2013, 2014 and 2015 and began exceeding 70˚F in April during 2014 and 2015.

Yet, the Regional Board approved and State Board staff proposes to allow Sac Regional to increase thermal loading in April, during the spawning period, from 20˚F above natural receiving waters to 25˚F above ambient temperature, even though the temperature in those waters already exceeds levels identifies as adverse to spawning. And even when the river is marginally below 65˚F, they propose to allow Sac Regional to increase size of the zone in which temperature can exceed the natural temperature. Never mind that the Thermal Plan itself is not protective and the adverse impacts to delta smelt spawning will continue into May and possibly June and adverse impacts to larval stages will continue for additional weeks. The Regional Board could have imposed more stringent temperature requirements as explicitly provided for in the Thermal Plan, rather than relaxing them, but that presupposes the Regional Board is concerned about a species hanging on the very lip of extinction.

Cooling Never Required?

The Regional Board, in its reply to CSPA's objection to the 4th Return to Writ in our lawsuit against the Board over the Thermal Plan exception in Sac Regional's 2010 NPDES Permit, suggests no one anywhere requires wastewater treatment facilities to cool thermal loading.

We note that Regional Board NPDES Permit, Order R5-2014-0015-01, for the City of Placerville, page F-4 and F-63, states in part that: "The wastewater treatment plant provides primary, secondary and tertiary treatment, including effluent cooling. The treatment train includes a headworks, primary clarifiers, biological nutrient removal, secondary clarifiers, flow equalization, effluent cooling, upflow clarifiers followed by gravity filtration, ultraviolet light (UV) disinfection, and effluent aeration." "In February 2011, the Discharger submitted an additional study entitled "*Supplemental Evaluation of Temperature and Fish and Benthic Macroinvertebrate Communities of Hangtown Creek*". This supplemental study evaluated the efficacy of the site-specific receiving water limitations and of three secondary effluent evaporative cooling towers which were installed at the Facility during the 2009 upgrade. Based on monitoring data collected since January 2010, only one exceedance of the site-specific receiving water limits was observed. The Discharger's supplemental study demonstrated that the discharge is not having an adverse effect on aquatic life in Hangtown Creek. The site-specific receiving water limitation for temperature has been retained in this Order." There is precedence for wastewater effluent cooling in the Central Valley Region.

These Concerns Were Previously Raised Before the Regional Board

The General Water Quality Provisions of the State's Thermal Plan require that the State Board concur with any exceptions *prior to their effective date.* Since Regional Board NPDES Permits are routinely effective on the date of adoption, CSPA assumed State Board concurrence on the Thermal Plan exception would occur prior to Permit issuance, as it was not discussed in the circulated tentative permit or prior to the close of the comment period and submission of our comments. CSPA intended to provide information to the State Board as to why the Board should not provide concurrence. We learned, after the fact and submission of our comments, that the

State Board Deputy Director sent the Regional Board an 11 March memorandum that states that staff will "recommend concurrence" by the State Board for the Thermal Plan exceptions. The fact that State Board staff informed the Regional Board that they would recommend concurrence, without hearing the concerns of opposing parties, raises the question of due process violation, as it indicates that the State Board has already reached a decision.

CSPA appealed Sac Regional's 2010 NPDES Permit and the State Board reviewed the Permit and issued Water Quality Order WQ-2012-0012. State Board legal staff admitted during the public hearing that CSPA's Petition for Review had not been reviewed during the petition process and therefore only comments by the Discharger and the Regional Board were considered. CSPA subsequently filed a lawsuit in Sacramento Superior Court. In August 2014, the Court agreed with several of CSPA's causes of action. Among other things, it ruled that the 2010 Permit failed to include the proper findings for a Thermal Plan exception and issued a Writ of Mandate directing the Regional Board to vacate the Thermal Plan exceptions and reconsider the issue of whether Thermal Plan exceptions may be granted.

In the most recent ruling, in October 2015, the Court upheld CSPA's objection to the Regional Board's ongoing failure to vacate the exceptions, and indicated that, "additional research was needed concerning the delta smelt." This was not done. Instead, the previously rejected studies and agency communications were re-hashed, re-explained and re-argued in a new report (the "2015 Supplemental Report"). However, nothing in the Regional Board's Return to Writ, the Draft Tentative Permit or the 2015 Supplemental Report on which the Draft Tentative Permit relies, supports a finding that the exceptions to the Thermal Plan are "more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made," as required. Therefore, the Regional Board, in issuing the Permit with inadequate findings, continues to violate the terms of the 29 October 2014 Writ, the Court's 26 March 2015 Order requiring "immediate compliance," and the Court's October 19, 2015 ruling that the Regional Board had failed to satisfy the requirements of 40 C.F.R. § 125.73(a) with respect to the exception to the Thermal Plan as it relates to Delta smelt.

The Court has rejected all of the temperature studies previously offered by the Regional Board in support of its finding that an exception to the Thermal Plan is warranted, with respect to Delta smelt. As the Court has already pointed out, these studies do not "focus on the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife" because a showing that 'the exception won't kill or harm more Delta Smelt than are already being killed' did not "equate to a finding that the subject smelt are more than adequately protected and propagated." A 24 June hearing has been scheduled on CSPA's objections to the Regional Board's 4th Return to Writ of Mandate ordered by the Court.

Instead of vacating the Thermal Plan exception, the Regional Board issued a proposed renewal of Sac Regional's NPDES Permit that include the subject Thermal Plan exception. On 7 March 2016, CSPA submitted comments on the proposed Permit including the Thermal Plan exception and, following adoption by the Regional Board, appealed the adopted Permit to the State Board on 22 May 2014. The Regional Board, in adopting Order R5-2016-0020, with the included

Thermal Plan exception, either failed respond to CSPA's comments at all or provided responses that were inadequate or incorrect.

Although CSPA was a designated party, an unexpected emergency prevented us from attending the 21 April NPDES Permit hearing in Fresno, California. However, these comments reflect CSPA's written comments, with refinements and a more explicit presentation that we would have been made to the Regional Board and intended to make to the State Board.

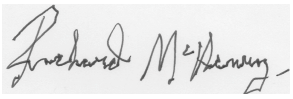
NMFS and USFWS have refused to endorse the Thermal Plan exception

The original draft of the Sac Regional NPDES Permit implied that the USFWS and NMFS had approved of the Thermal Plan exception. They had not! Both USFWS and NMFS reviewed the studies and provided comments on their adequacy and whether the studies answered the questions posed by the study. These reviews were not part of a formal consultation and neither Service rendered an opinion. For example, the NMFS noted that their remained questions not addressed by the studies and the USFWS simply told the Board that it now had the information needed to evaluate the effects of thermal discharge on Delta smelt. Even after the Regional Board explicitly requested their approval of the Thermal Plan exception, the Services declined to endorse the exception. The Regional Board subsequently modified the proposed Permit, in late revisions, to eliminate the phrase "State and federal agencies do not object to the allowance of exceptions" to say "State and federal agencies provided technical assistance" and added "Concurrence from the fishery agencies is not required for the Central Valley Water Board to grant exceptions to the Thermal Plan, however the Central Valley Water Board requested technical assistance." To reiterate, the USFWS and NMFS declined to endorse the Thermal Plan exception when asked to do so by the Regional Board. CSPA believes Sac Regional and the Regional Board should have requested formal consultation pursuant to the federal Endangered Species Act.

Thank you for considering these comments. If you have questions or require clarification, please don't hesitate to contact us.

Sincerely,

Bill Jennings, Executive Director
California Sportfishing Protection Alliance



Richard McHenry
Director of Permits and Compliance
California Sportfishing Protection Alliance